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SHARP 25MR15J SERVICE MANUAL

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SHARP SERVICE MANUAL

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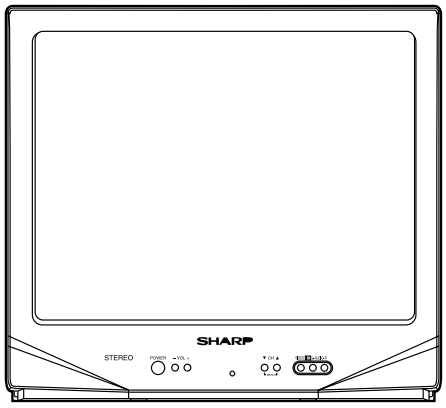

COLOR TELEVISION

Chassis No. SN-70A

MODEL 25MR15J

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 120 V AC 60 Hz
POWER RATING ..... 92 W
PICTURE SIZE ..... Approx. 267 sq. in.
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-potential
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)
AUDIO POWER
  OUTPUT RATING ..... 1.5 W + 1.5 W (at 10% Distortion and Dual CH Operate)

SPEAKER
  SIZE ..... 8 cm (Round)
  VOICE COIL IMPEDANCE ..... 32 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  All 12 television channels ..... 54 MHz to 88 MHz
  174 MHz to 214 MHz
  Any of 56 UHF channels ..... 470 MHz to 806 MHz
  CATV Channels (1.14 thru 125) ..... 72. 120 MHz to 804 MHz

Specifications are subject to change without prior notice.

SHARP CORPORATION

IMPORTANT SERVICE SAFETY PRECAUTION

■ **Service work should be performed only by qualified service technicians who are throughly familiar with all safety checks and the servicing guidelines which follow:**

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value -no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

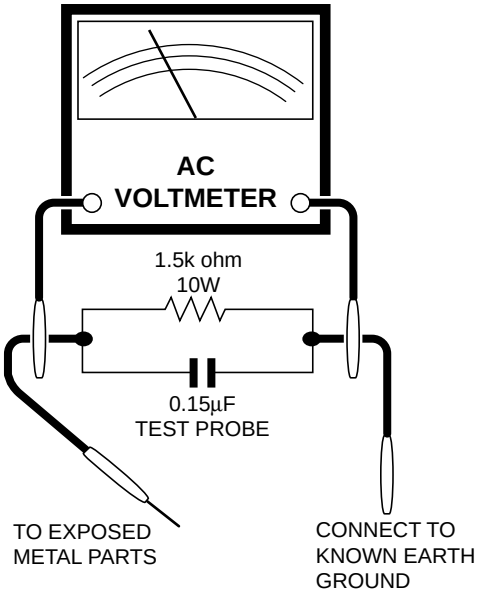
BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators and etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15mF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon and etc.) and measure the AC voltage drop across the resistor.
  AII checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "Ⓢ" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

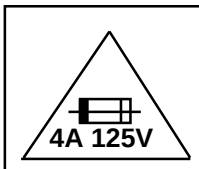
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
(2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.



CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S19" and Bus data "01" (Y-mute on).
4. The voltage should be approximately, 27.1kV (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, +B system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 11.2 $\pm$ 0.7V.
5. Apply external 14.4V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

SERVICE INSTRUCTIONS

For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjustment is required. See "Table-B" to determine, if service adjustments are required.

1. SERVICE MODE

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer controls are in their proper (reset) position.

2. SERVICE NUMBER SELECTION

Once in the service mode, press the Ch-up or Ch-down button on the remote controller or at the set. The service adjustment number will vary in increments of one, from "S01" to "M05". Select the item you wish to adjust.

3. DATA NUMBER SELECTION

Press the Vol-up or down button to adjust the data number.

TO ENTER THE SERVICE MODE AND EXIT SERVICE MODE

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket. Now the TV set is switched on and enters the service mode.
To exit the service mode, turn the television off by pressing the power button.

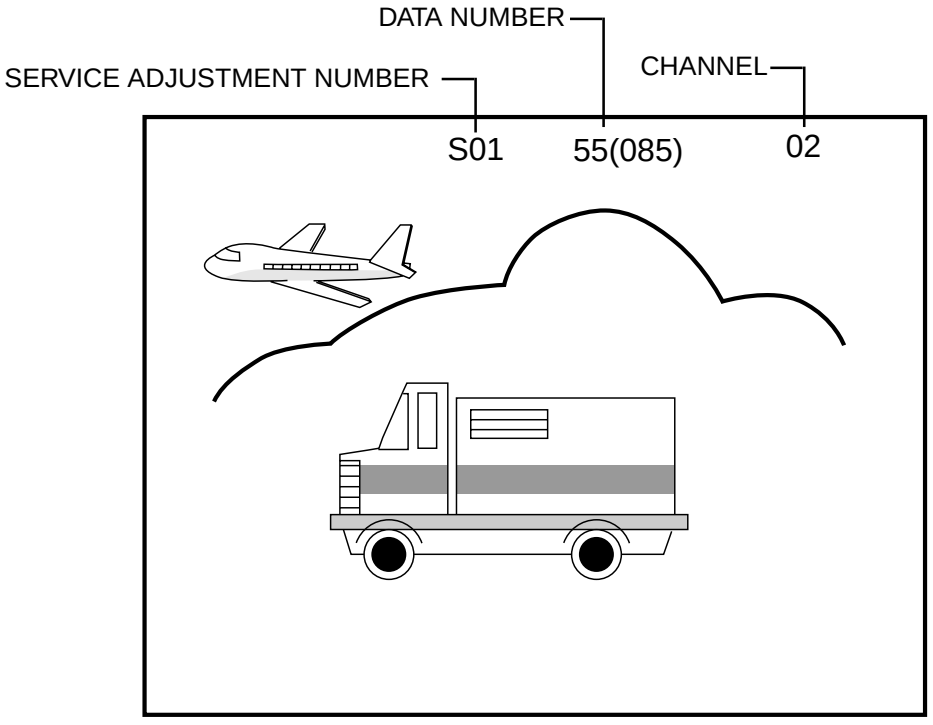


Figure 1.

SERVICE INSTRUCTIONS

SERVICE NUMBER	ADJUSTMENT ITEM	DATA		ADJUSTMENT CONTENTS
		INITIAL VALUE	RANGE	
S01	PICTURE	55	00-7F	
S02	TINT	46	00-7F	
S03	COLOR	32	00-7F	
S04	BRIGHTNESS	40	00-7F	
S05	SHARPNESS	28	00-3F	Must be set to "28"
S06	VERTICAL PHASE	00	00-07	Must be set to "00"
S07	HORIZONTAL PHASE	12	00-1F	
S08	RF-AGC	23	00-3F	
S09	VERTICAL AMP	20	00-3F	
S10	PIF VCO	2C	00-7F	
S11	R CUT-OFF	00	00-FF	
S12	G CUT -OFF	00	00-FF	
S13	B CUT-OFF	00	00-FF	
S14	G GAIN	7F	00-FF	
S15	B GAIN	7F	00-FF	
S16	TRAP	00	00 or 01	Must be set to "00"
S17	BALANCE	20	00-3F	Must be set to "20"
S18	C.C.POSITION	17	00-7F	
S19	MUTE	00	00,01,03	"00"=Normal, "01"=No Y, "03"=No Vertical
S20	ENERGY SAVE OFFSET	20	00-3F	Must be set to "23"
S21	TIMER	7A	00-1F	Must be set to "7A"
S22	OSD SETUP	00	00-03	
S23	TUNER SETUP	00	00, 01	Must be set to "00"
OP1	OPTION 1 (Set to each model)	00	00-FF	Must be set to "13"
OP2	OPTION 2 (Set to each model)	00	00-FF	Must be set to "17"
M01	INPUT LEVEL	0A	00-0F	
M02	ST VCO	20	00-3F	
M03	FILTER	1C	00-3F	
M04	WIDE BAND	20	00-3F	
M05	SPECTRAL	1B	00-3F	

Table - A

Holding down both the Ch-up/down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2101.

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2101.
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201 and MTS level (M01).
IC2101	X		Holding down both the Ch-up/down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2101. Then perform a complete adjustment.
CRT	X		Adjust items related to picture tube only.
IC3001	X		Adjust items related to MTS only (M01~M05).

Table - B

SERVICE INSTRUCTIONS

■ SERVICE ADJUSTMENT

Note: Before making the service adjustment, make he bus data settings.

+B ADJUSTMENT

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter vetween the +B line (at SW transformer) of R61 and the ground terminal.
4. Adjust R738 so that the voltmeter should read 130 ± 0.5V.

VCO ADJUSTMENT

1. Connect a digital voltmeter between pin (44) of IC201 and GND.
2. Receive a good local channel.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data so that digital voltmeter reads 2.2V.
5. Adjustment is completed, remove the voltmeter, return to the "normal" mode.

RF AGC ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S08".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

   Note 1: You will have to come out of the service mode to select another channel.

   Note 2: Setting the data to "00" will produce a black raster.

SCREEN ADJUSTMENT

1. Connect a oscilloscope between TP854 and GND on the CRT Unit.
2. Receive a good local channel.
3. Enter the service mode and select the service adjustment "S03" and set the data value to "00" to set the color level to minimum. (Record original data code under adjustment "S03" before changing) You may skip this step, if you selected a B/W picture or monoscope pattern.

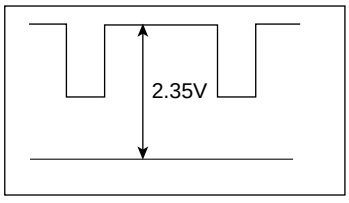


Figure 2.

4. Select the service adjustment "S19" and adjust the data value to "01", this turn off the luminance signal (Y-mute).
5. Select the service adjustment "S04" and adjust data value to obtain 2.35V on the oscilloscope screen (Refer to **Figure 2.**).
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust the service adjustments "S11" red, "S12" green and "S13" blue to obtain a good grey scale with normal whites at low brightness level.
8. Select the service adjustment "S19" and reset data to "00". Select the service adjustment "S03" and reset data to obtain normal color level.
9. Remove a oscilloscope, and reset the master screen control to obtain normal brightness range.

WHITE BALANCE ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S03" and set to "00" (minimum color)(Record original data code under adjustment "S03" before changing). "S03" does not have to be adjusted, if you selected a B/W picture or monoscope pattern.
3. Alternately adjust the service adjustment data of "S14" and "S15" until a good grey scale with normal whites is obtained.
4. Select the service adjustment "S03" and adjust data to obtain normal color level.

SUB-PICTURE ADJUSTMENT

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S01".
4. Adjust the data value to achieve normal contrast range.

SUB-TINT ADJUSTMENT

1. Receive a good local channel.
2. Set customer tint control to center of it's range.
3. Enter the service mode and select the service adjustment "S02".
4. Adjust "S02" data value to obtain normal flesh tones.

SUB-COLOR ADJUSTMENT

1. Receive a good local channel.
2. Make sure the customer color control is set to center position .
3. Enter the service mode and select the service adjustment "S03".
4. Adjust "S03" data value to obtain normal color level.

SERVICE INSTRUCTIONS

SUB-BRIGHTNESS ADJUSTMENT

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S04".
4. Adjust "S04" data value to obtain normal brightness level.

VERTICAL-SIZE ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S09".
3. While observing the top and bottom of the screen, adjust "S09" data value to proper vertical size.

VERTICAL PHASE ADJUSTMENT

1. Enter the service mode and select the service adjustment "S06".
2. Adjust data value to "00".
   Note: This must be set "00" when changed data retrace line will appear.

HORIZONTAL POSITION ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S07".
3. Adjust "S07" data value so that picture is centered.

CAPTION POSITION ADJUSTMENT (Horizontal)

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S18".
3. A black text box appears on the screen. (Refer to **Figure 3.**)
4. Adjust "S18" data value so that text box is positioned in the center of the screen.

3.58MHz TRAP ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustment "S16".
3. This is a two position adjustment, "00" is ON, "01" is OFF.
4. Adjust data value to "00" for normal viewing.

SHARPNESS AND AUDIO BALANCE ADJUSTMENT

1. Receive a good local channel.
2. Enter the service mode and select the service adjustments "S05" for sharpness and "S17" for audio balance.

- **Sharpness adjustment**

3. Adjust data value to "28" (center of data range) for sharpness adjustment.

- **Audio balance adjustment**

4. Adjust data value to "20" (center of data range) for audio balance adjustment.

OTHER ADJUSTMENT

1. Enter the service mode.
2. Adjust the following data values as listed below.

S16	"00"	TRAP
S20	"23"	ENERGY SAVE OFFSET
S21	"7A"	TIMER
S23	"00"	TUNER SETUP

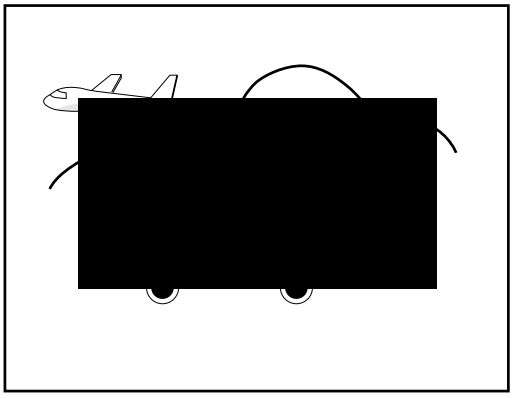


Figure 3.

SERVICE INSTRUCTIONS

■ MTS ADJUSTMENT

MTS LEVEL ADJUSTMENT

1. Feed the following monaural signal to pin (14) of IC3001.
   Monaural signal: 400Hz, 245mVrms
2. Connect the rms voltmeter to pin (39) of IC3001.
3. Enter the service mode and select the service adjustment "M01".
4. Adjust the data so that the rms voltmeter reads 490 ± 10mVrms.

MTS VCO ADJUSTMENT

1. Keep the unit in no-signal state.
2. Connect the frequency counter to pin (39) of IC3001.
3. Connect a capacitor (100µF, 16V) in between positive(+) side of C3005 and ground.
4. Enter the service mode and select the service adjustment "M02"
5. Adjust the data so that the frequency counter reads 62.94 ± 0.75kHz.

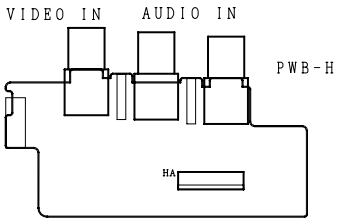
FILTER ADJUSTMENT

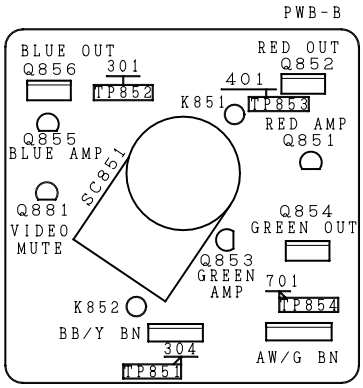
1. Feed the following stereo pilot signal to pin (14) of IC3001 .
   Stereo pilot signal: 9.4kHz, 600mVrms.
2. Enter the service mode and select the service adjustment "M03".
3. Adjust the data at the point where "OK" appears on the screen. The "OK" represents the approximate center of the adjustable range of the data.

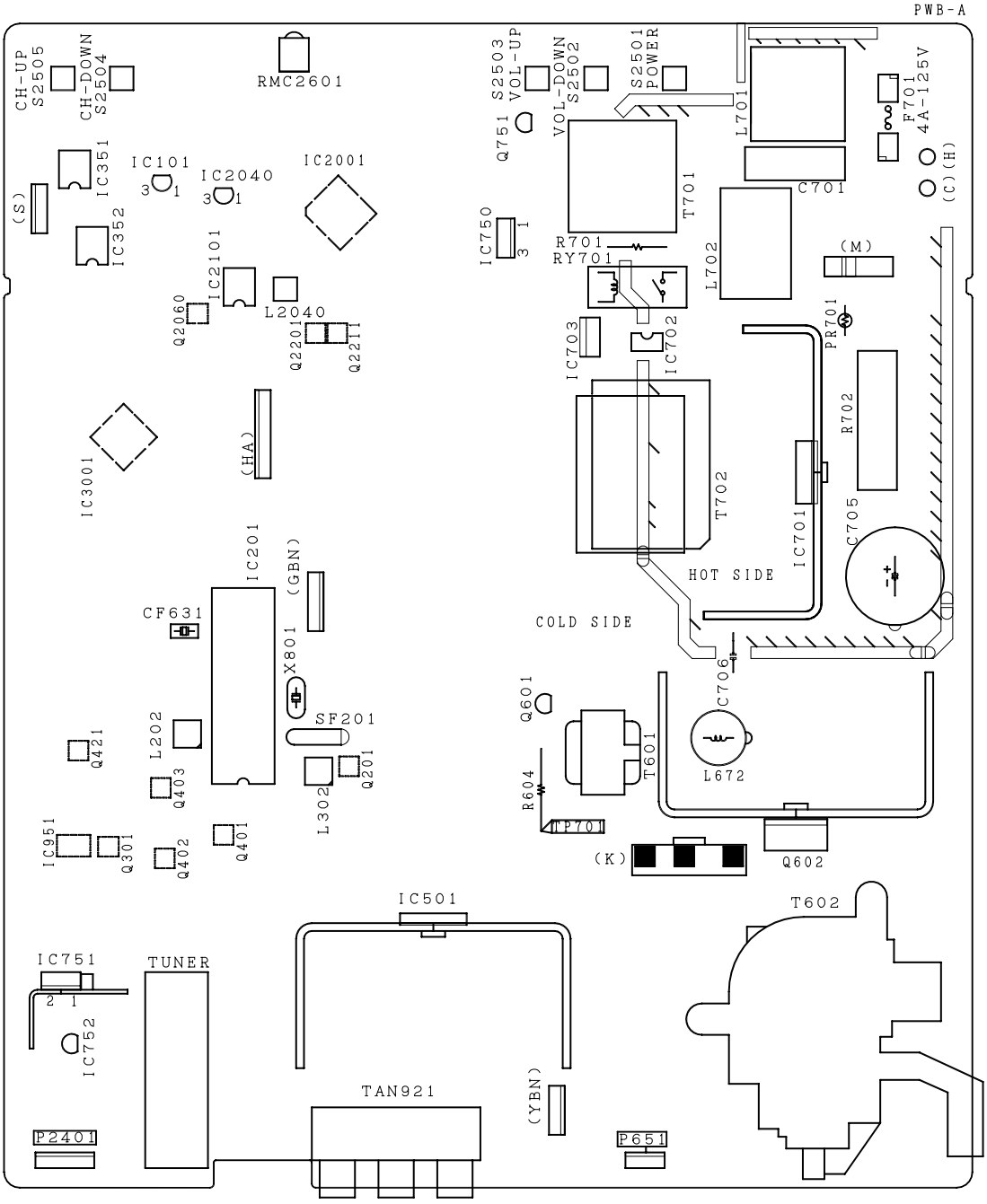
SEPARATION ADJUSTMENT

1. Connect the rms voltmeter to pin (39) of IC3001.
2. Receive the following composite stereo signal 1.
   Composite stereo signal: 30% modulation, left channel only, noise reduction on, 300Hz
3. Enter the service mode and select the service adjustment "M04".
4. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
5. Receive the following composite stereo signal 2.
   Stereo signal: 30% modulation, left channel only, noise reduction on, 3kHz
6. Enter the service mode and select the service adjustment "M05".
7. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
8. Take the above steps 1 thru 7 again for fine adjustment.

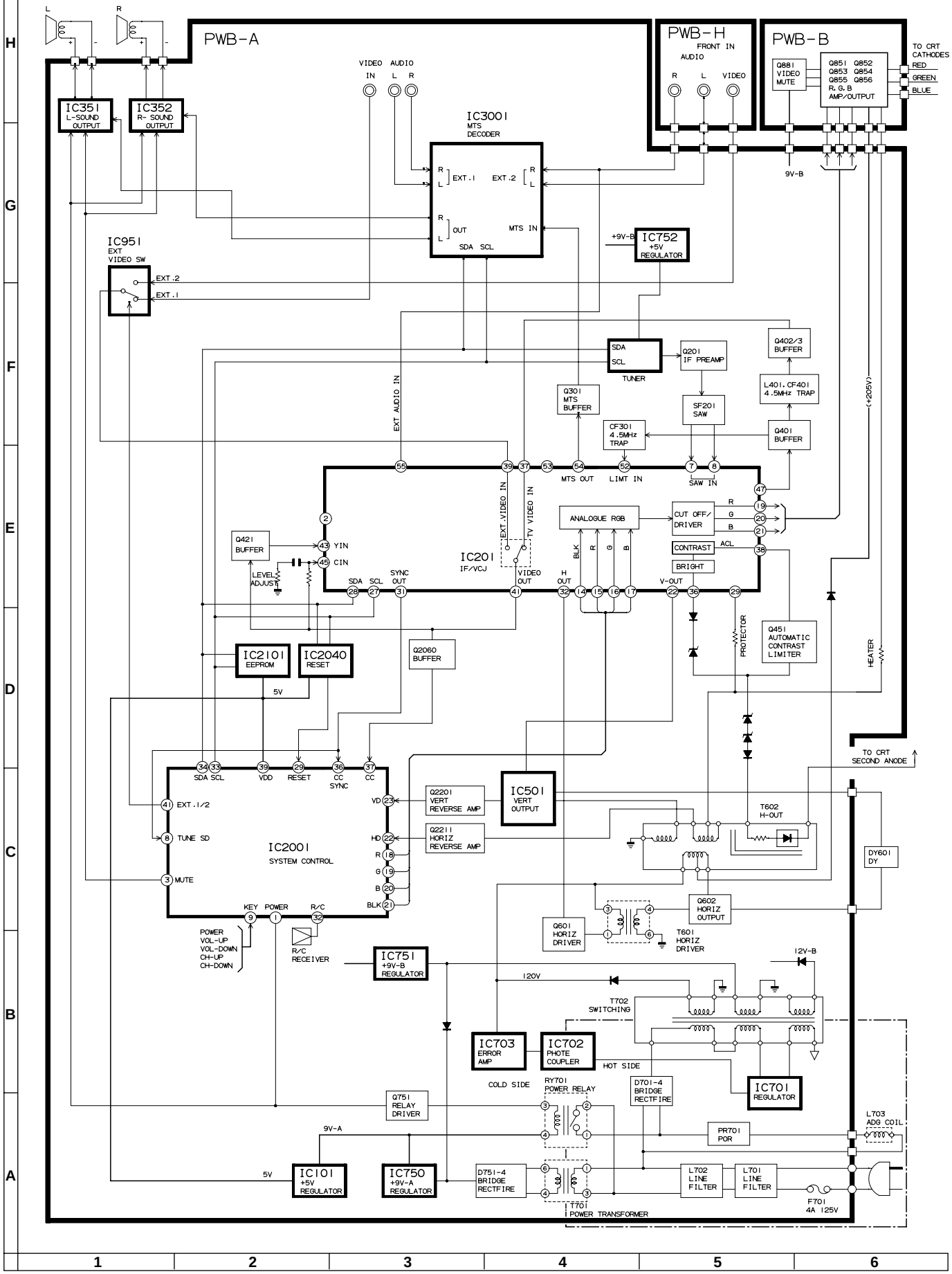
CHASSIS LAYOUT







BLOCK DIAGRAM



DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*
3. *THE CHASSIS IN THIS RECEIVER IS HOT .(CONNECTED TO ONE SIDE OF THE AC LINE) USE AN ISOLATION TRANSFORMER BETWEEN THE LINE CORD AND POWER RECEPTACLE, WHEN SERVICING THIS CHASSIS.*

CIRCUIT PROTECTION

The entire receiver is protected by a 4.0A (F701) fuse, mounted on PWB-A, that is wired into one side of the AC line input.

NOTES:

1. *The unit of resistance "ohm" is omitted. (K = kΩ = 1000Ω, M = MΩ)*
2. *All resistors are 1/10 watt, unless otherwise noted.*
3. *All capacitors μF, unless otherwise noted. (p = pF = μμF)*
4. *(G) indicates ±2% tolerance may be used.*

VOLTAGE MEASUREMENT CONDITIONS:

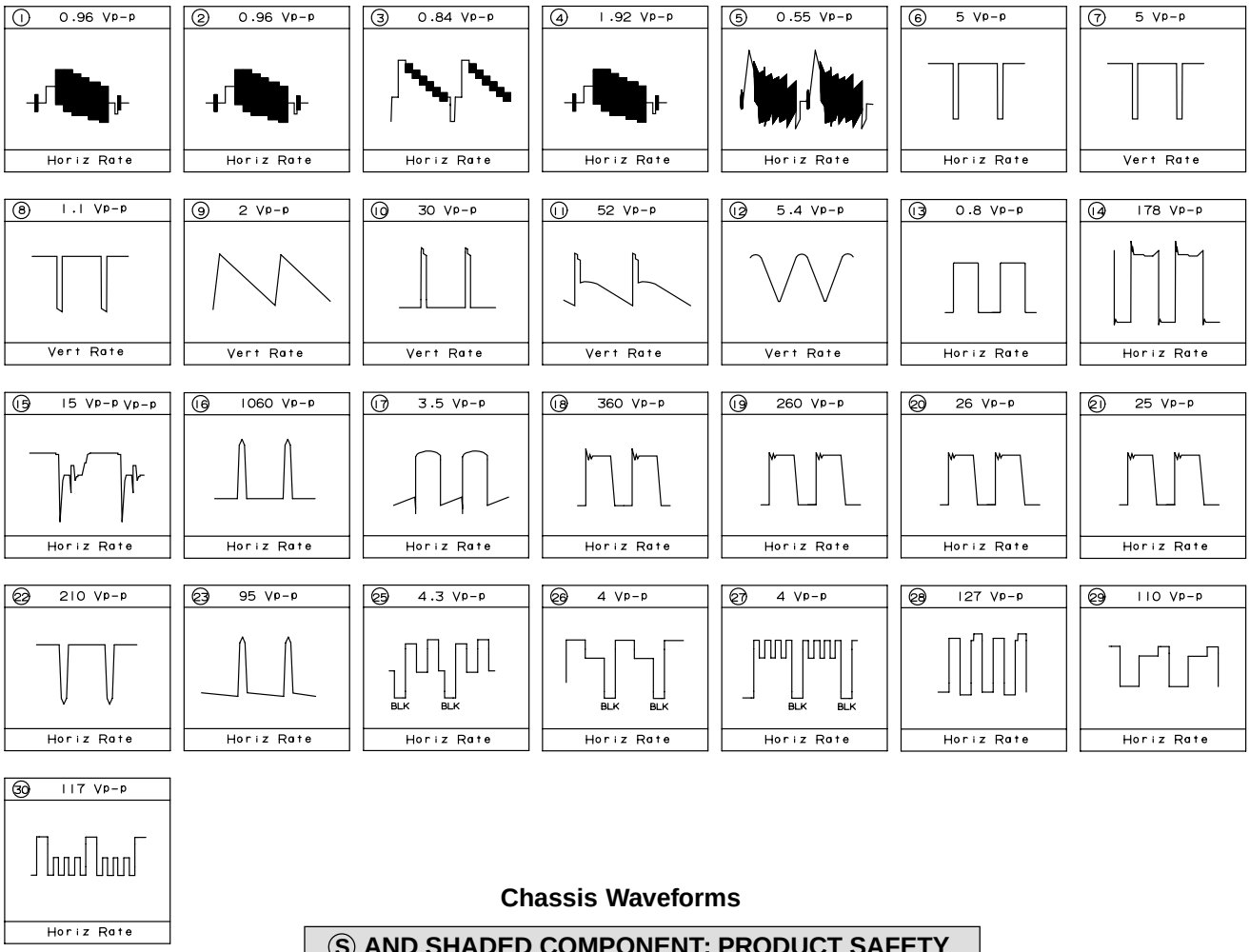
1. *All DC voltages are measured with VTVM placed between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μV input, B & W or Color signal.*

WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *indicates wave form check points (See chart, waveform measured from point indicated to chassis ground.)*

WAVEFORMS FOR POINTS INDICATED

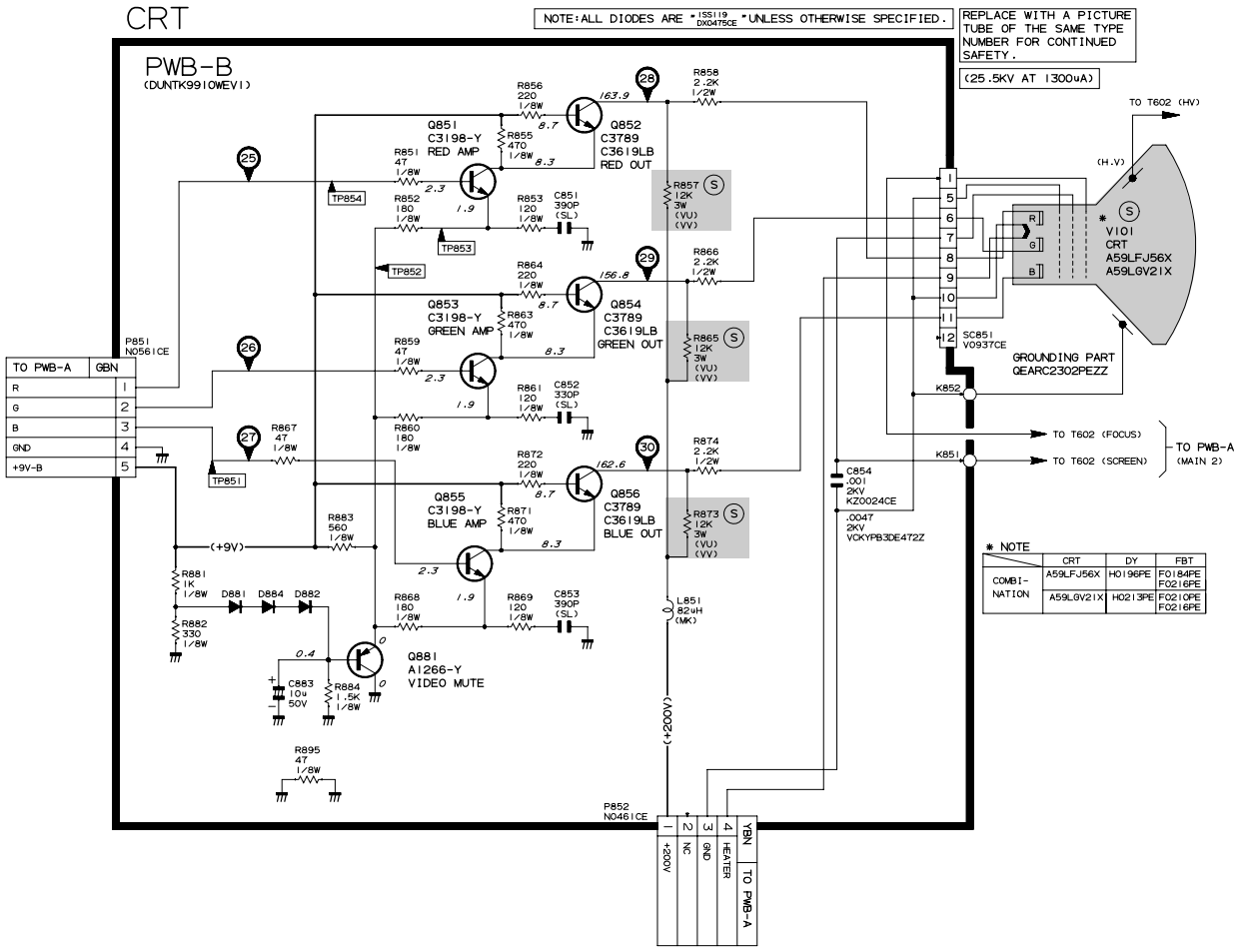
WAVEFORMS TAKEN WITH KEYED RAINBOW GENERATOR INPUT

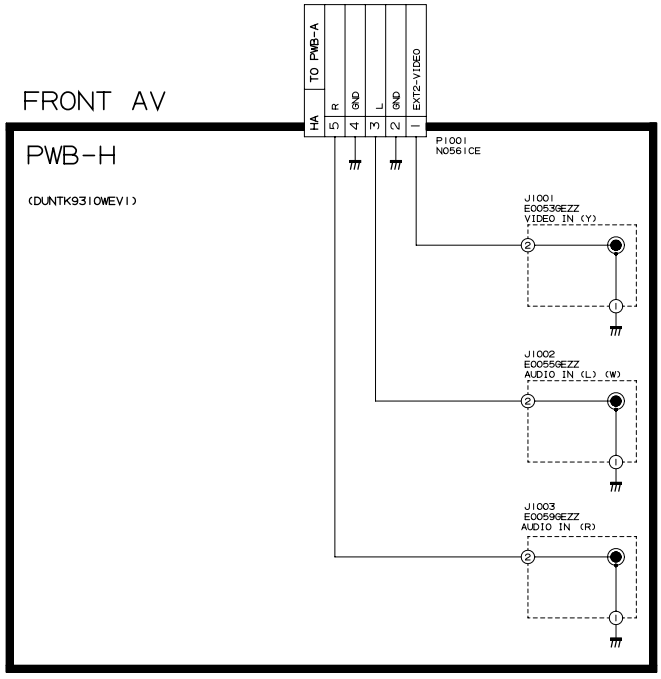


Chassis Waveforms

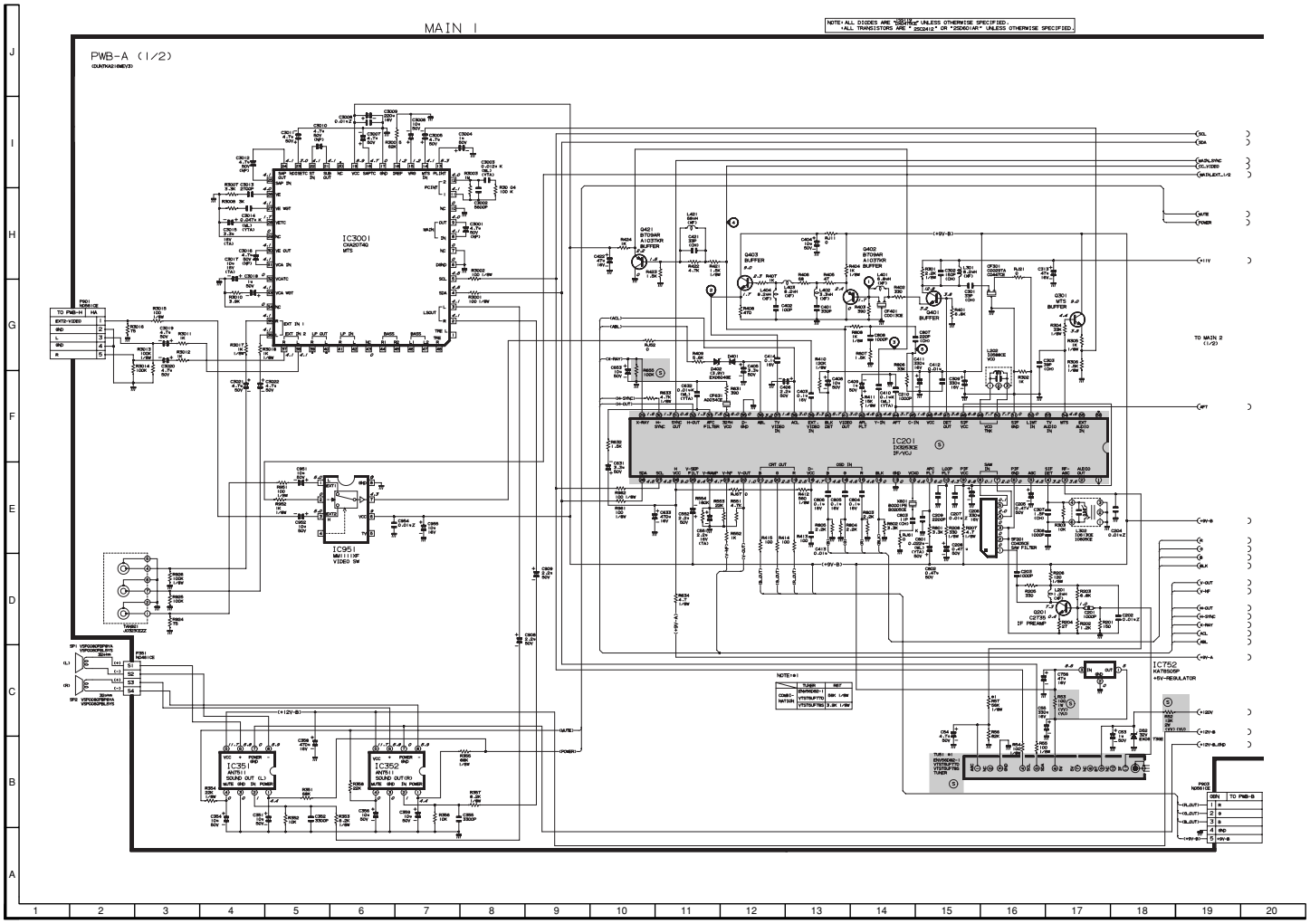
Ⓢ AND SHADED COMPONENT: PRODUCT SAFETY

SCHEMATIC DIAGRAM: CRT and FRONT AV Unit

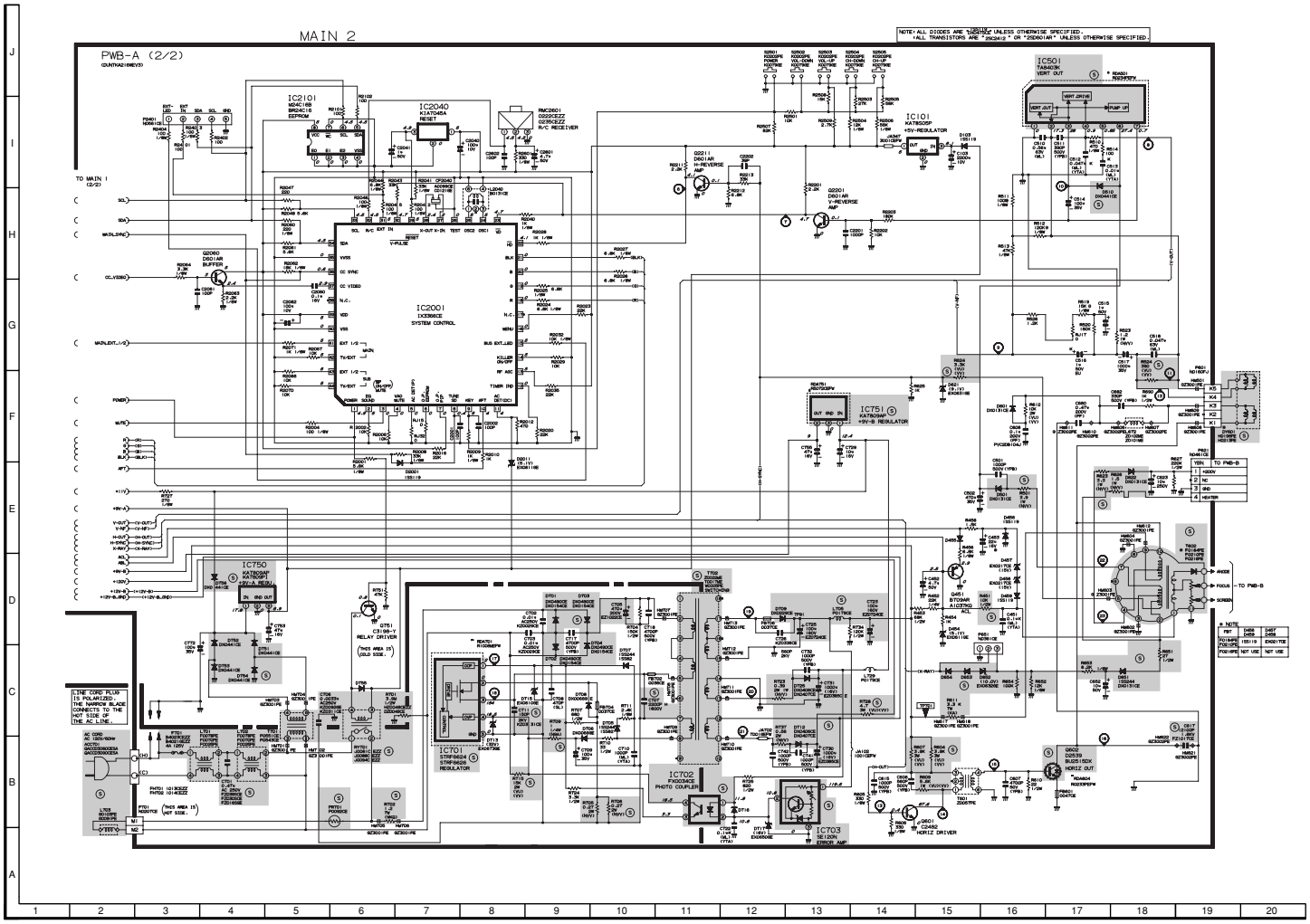




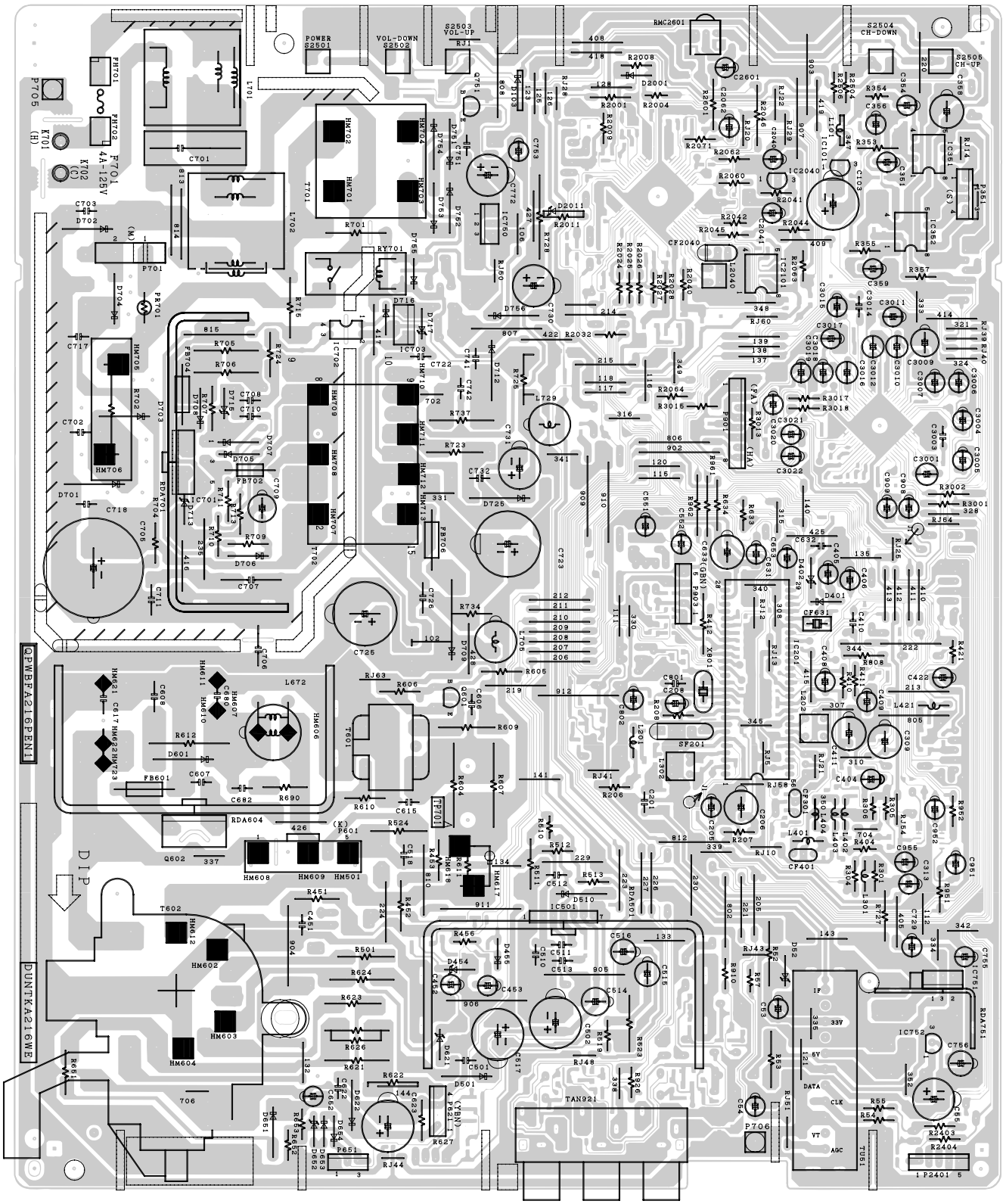
SCHEMATIC DIAGRAM: MAIN-1 Unit



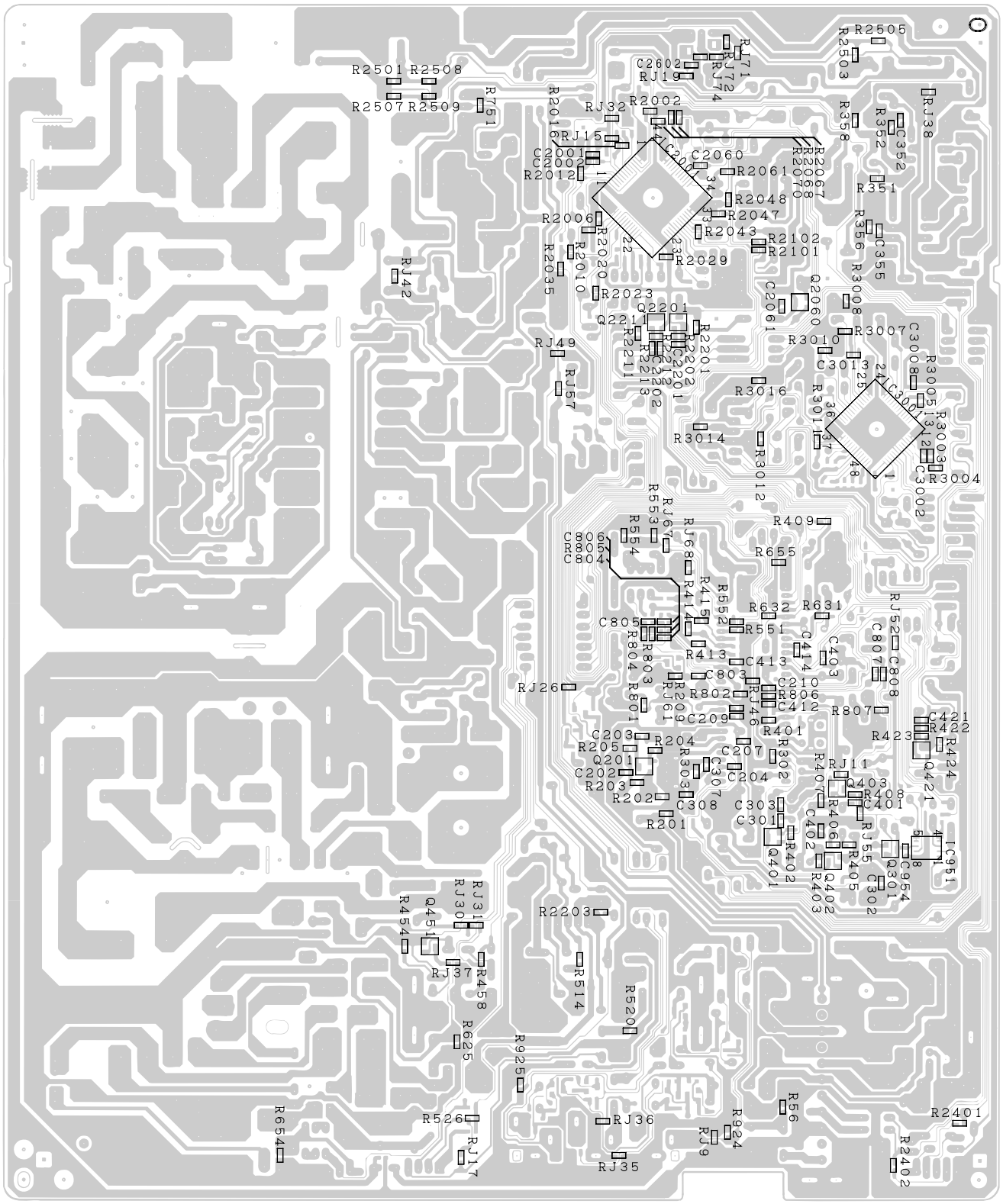
SCHEMATIC DIAGRAM: MAIN-2 Unit



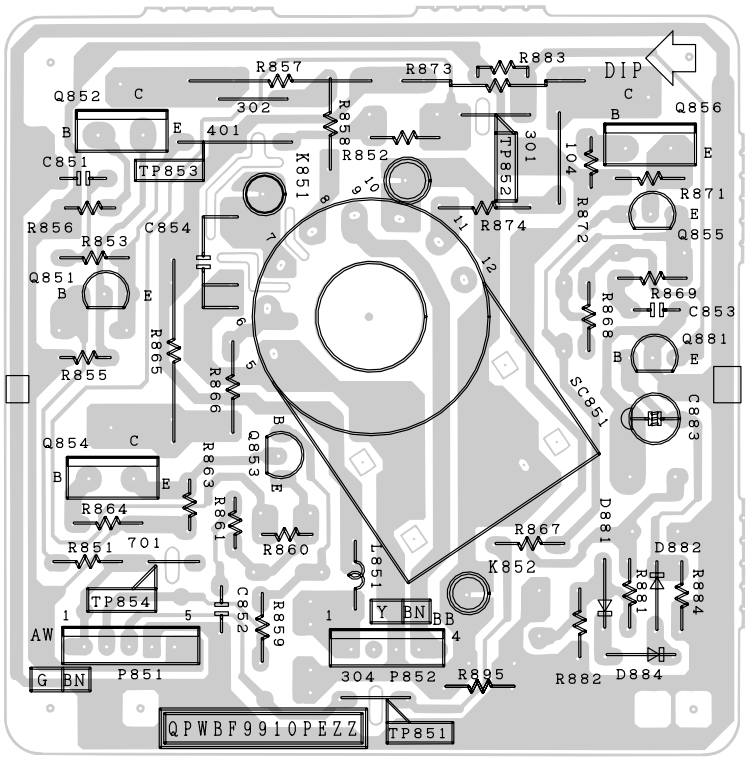
PRINTED WIRING BOARD ASSEMBLIES



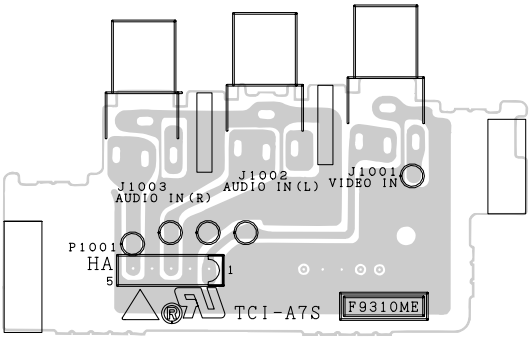
PWB-A: MAIN Unit (Wiring Side)



PWB-A: MAIN Unit (Chip Parts Side)



PWB-B: CRT Unit (Wiring Side)



PWB-H: FRONT AV Unit (Wiring Side)

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by Ⓢ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

★MARK : SPARE PARTS-DELIVERY SECTION

▲MARK : X- RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

Ⓢ V101	VB59LGV21X/✱S	R	Picture Tube	CG
Ⓢ L703	RCiLG0103PEZZ	R	Degaussing Coil	AQ
Ⓢ DY601	RCiLH0213PEZZ	R	Deflection Yoke	BC
	PMAGF3046CEZZ	J	Magnet	AF
	QEARC2302PEZZ	R	Ground-Part	AG

	CRT	DY	FBT
COMBI-NATION	A59LFJ56X	H0196PE	F0184PE F0216PE
	A59LGV21X	H0213PE	F0210PE F0216PE

PRINTED WIRING BOARD ASSEMBLIES
(NOT REPLACEMENT ITEM)

DUNTKA216WEV3	— Main Unit	—
DUNTK9310WEV1	— Front AV Unit	—
DUNTK9910WEV1	— CRT Unit	—

Ref. No.	Part No.	★	Description	Code

PWB-A: DUNTKA216WEV3
MAIN UNIT

TUNER

NOTE : THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

Ⓢ TU51	VTUENV56D82-1	J	VHF Tuner	AZ

	TUNER	R57
COMBI-NATION	ENV56D82-1 VTST5UF770	56K 1/8W
	VTST5UF78S	3.9K 1/8W

INTEGRATED CIRCUITS

IC101	VHiKA78S05P-1	J	KIA78S05P	AD
Ⓢ IC201	RH-iX3253CEZZ	J	TA1268AN	AV
IC351	VHiAN7511//-1	J	AN7511	AK
IC352	VHiAN7511//-1	J	AN7511	AK
Ⓢ IC501	VHiTA8403K/-1	J	TA8403K	AL
Ⓢ IC701	VHiSTRF66241E	J	I.C.	AR
Ⓢ IC702	RH-FX0034CEZZ	J	PC817	AE
Ⓢ IC703	VHiSE120N//-1	J	SE120N	AG
Ⓢ IC750	VHiKA7809AP-1	J	KIA7809API	AE
Ⓢ IC751	VHiKA7809AP-1	J	KIA7809API	AE
IC752	VHiKA78S05P-1	J	KIA78S05P	AD
IC951	VHiMM1111XF1E	J	MM1111XFBE	AE
IC2001	RH-iX3366CEN2	J	I.C.	AU
IC2040	VHiKiA7045A-1	J	KIA7045AP	AE
IC2101	VHiM24C16B/-1	J	M24C16-BN6	AG
IC3001	VHiCXA2074Q-1	J	CXA2074Q	AY

TRANSISTORS

You can substitute "VS2SC2412-C-1" for "VS2PD601AR/-1".

Q201	VS2SC2735//1E	J	2SC2735	AC
Q301	VS2SD601AR/-1	J	2SD601AR	AC
Q401	VS2SD601AR/-1	J	2SD601AR	AC
Q402	VS2SB709AR/-1	J	2SB709AR	AC
Q403	VS2SD601AR/-1	J	2SD601AR	AC
Q421	VS2SB709AR/-1	J	2SB709AR	AC
Q451	VS2SB709AR/-1	J	2SB709AR	AC
Q601	VS2SC2482//-1	J	2SC2482	AD
Ⓢ Q602	VS2SD2539//1E	J	2SD2539	AP
Q751	VS2SC3198-Y-1	J	2SC3198(Y)	AA
Q2060	VS2SD601AR/-1	J	2SD601AR	AC
Q2201	VS2SD601AR/-1	J	2SD601AR	AC
Q2211	VS2SD601AR/-1	J	2SD601AR	AC

DIODES

You can substitute "RH-DX0475CEZZ" for "VHD1SS119//-1".

D52	RH-EX0673GEZZ	J	Zener Diode, 32V	AB
D103	VHD1SS119//-1	J	Diode	AB
D401	VHD1SS119//-1	J	Diode	AB
D402	RH-EX0604GEZZ	J	Zener Diode, 3.9V	AB
D454	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
D455	VHD1SS119//-1	J	Diode	AB
D456	VHD1SS119//-1	J	Diode	AB
D457	RH-EX0217CEZZ	J	Zener Diode, 15V	AB
D458	RH-EX0217CEZZ	J	Zener Diode, 15V	AB
D459	VHD1SS119//-1	J	Diode	AB
Ⓢ D501	RH-DX0131CEZZ	J	Diode	AC
Ⓢ D510	RH-DX0441CEZZ	J	Diode	AC
D601	RH-DX0131CEZZ	J	Diode	AC
D621	RH-EX0631GEZZ	J	Zener Diode, 9.1V	AA
Ⓢ D622	RH-DX0131CEZZ	J	Diode	AC
Ⓢ D651	VHD1SS244//-1	J	Diode	AB
Ⓢ D652	RH-EX0632GEZZ	J	Zener Diode, 10V	AA
Ⓢ D653	VHD1SS119//-1	J	Diode	AB
Ⓢ D654	VHD1SS119//-1	J	Diode	AB
Ⓢ D701	RH-DX0490CEZZ	J	Diode	AC
Ⓢ D702	RH-DX0490CEZZ	J	Diode	AC
Ⓢ D703	RH-DX0490CEZZ	J	Diode	AC
Ⓢ D704	RH-DX0490CEZZ	J	Diode	AC

PWB-A: DUNTKA216WEV3
MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
D705	VHD1SS244//-1	J	Diode	AB
D706	RH-DX0066GEZZ	J	Diode	AB
D707	VHD1SS244//-1	J	Diode	AB
D708	RH-DX0066GEZZ	J	Diode	AB
Ⓢ D709	RH-DX0229CEZZ	J	Diode	AF
Ⓢ D712	RH-DX0406CEZZ	J	Diode	AD
D713	RH-EX0673GEZZ	J	Zener Diode, 32V	AB
D715	RH-EX0610GEZZ	J	Zener Diode, 4.7V	AA
D716	VHD1SS119//-1	J	Diode	AB
D717	RH-EX0650GEZZ	J	Zener Diode, 16V	AB
Ⓢ D725	RH-DX0406CEZZ	J	Diode	AD
Ⓢ D751	RH-DX0441CEZZ	J	Diode	AC
Ⓢ D752	RH-DX0441CEZZ	J	Diode	AC
Ⓢ D753	RH-DX0441CEZZ	J	Diode	AC
Ⓢ D754	RH-DX0441CEZZ	J	Diode	AC
D755	VHD1SS119//-1	J	Diode	AB
Ⓢ D756	RH-DX0441CEZZ	J	Diode	AC
D2001	VHD1SS119//-1	J	Diode	AB
D2011	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA

PACKAGED CIRCUITS

Ⓢ PR701	RMPTP0092CEZZ	J	Packaged Circuit	AH
X801	RCRSB0001PEZZ	R	Crystal	AL

FILTERS

CF301	RFiLC0029TAZZ	J	Ceramic Filter	AD
CF401	RFiLC0013CEZZ	J	Ceramic Filter	AE
CF631	RFiLA0034CEZZ	J	Ceramic Filter	AD
CF2040	RFiLA0099CEZZ	J	Ceramic Filter	AE
SF201	RFiLC0405CEZZ	J	Saw Filter	AH

COILS

L201	VP-XF1R2K0000	J	Peaking 1.2µH	AB
L202	RCiLi0588CEZZ	J	If Coil	AF
L301	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L302	RCiLi0613CEZZ	J	If Coil	AE
L401	VP-XF6R8K0000	J	Peaking 6.8µH	AB
L402	VP-XF3R3K0000	J	Peaking 3.3µH	AB
L403	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L404	VP-XF8R2K0000	J	Peaking 8.2µH	AB
L421	VP-XF680K0000	J	Peaking 68µH	AB
L672	RCiLZ0102MEZZ	J	Coil	AH
Ⓢ L701	RCiLF0078PEZZ	R	Coil	AF
Ⓢ L702	RCiLF0078PEZZ	R	Coil	AF
Ⓢ L705	RCiLP0179CEZZ	J	Coil	AD
L729	RCiLP0179CEZZ	J	Coil	AD
L2040	RCiLB0131CEZZ	J	Oscillation Coil	AE

TRANSFORMERS

T601	RTRNZ0057PEZZ	R	H-Drive	AK
Ⓢ T602	RTRNF0210PEZZ	R	H-Out	BB

FBT	D456 D459	D457 D458
F0184PE F0210PE	ISS119	EX0217CE
F0216PE	NOT USE	NOT USE

T701	RTRNP0551CEZZ	J	Power	AK
T702	RTRNZ0022MEZZ	J	Transformer	AP

CAPACITORS

[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]

C53	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C54	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C55	VCEA0A1CW337M	J	330	16V	EL.	AC
C103	VCEA0A1AW228M	J	2200	10V	EL.	AD
C201	VCKYPA1HB102K	J	1000p	50V	Ceramic	AA
C202	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C203	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C204	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C205	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C206	VCEA0A1CW337M	J	330	16V	EL.	AC
C207	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C208	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C209	VCKYCY1HB222K	J	2200p	50V	Ceramic	AA
C210	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C301	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C302	VCCCCY1HH151J	J	150p	50V	Ceramic	AA
C303	VCCCCY1HH390J	J	39p	50V	Ceramic	AA
C307	VCCCCY1HH1R5C	J	1.5p	50V	Ceramic	AD
C308	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C309	VCEA0A1CW337M	J	330	16V	EL.	AC
C313	VCEA0A1CW476M	J	47	16V	EL.	AB
C351	VCEA0A1HW106M	J	10	50V	EL.	AB
C352	VCKYCY1HB332K	J	3300p	50V	Ceramic	AA
C354	VCEA0A1HW106M	J	10	50V	EL.	AB
C355	VCKYCY1HB332K	J	3300p	50V	Ceramic	AA
C356	VCEA0A1HW106M	J	10	50V	EL.	AB
C358	VCEA0A1CW477M	J	470	16V	EL.	AC
C359	VCEA0A1HW106M	J	10	50V	EL.	AB
C401	VCKYCY1HB331K	J	330p	50V	Ceramic	AA
C402	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C403	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C404	VCEA0A1HW106M	J	10	50V	EL.	AB
C405	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C406	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C408	VCEA0A1HW106M	J	10	50V	EL.	AB
C409	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C410	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
C411	VCEA0A1CW337M	J	330	16V	EL.	AC
C412	VCKYCY1HB103K	J	0.01	50V	Ceramic	AA
C413	VCKYCY1HB103K	J	0.01	50V	Ceramic	AA
C414	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C421	VCCCCY1HH330J	J	33p	50V	Ceramic	AA
C422	VCEA0A1CW476M	J	47	16V	EL.	AB
C451	VCQYTA1HM104K	J	0.1	50V	Mylar	AC
C452	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C453	VCEA0A1CW226M	J	22	16V	EL.	AB
C501	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C502	VCEA0A1VW477M	J	470	35V	EL.	AB
C510	VCFYSA1JB564J	J	0.56	63V	Mylar	AE
C511	VCKYPA2HB391K	J	390p	500V	Ceramic	AA
C512	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C513	VCQYTA1HM103K	J	0.01	50V	Mylar	AB
C514	VCEA0A1VW107M	J	100	35V	EL.	AC
C515	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C516	VCEACA1HC105K	J	1.0	50V	EL.	AC
C517	VCEA0A1VW108M	J	1000	35V	EL.	AD
C518	VCFYSA1JB473J	J	0.047	63V	Mylar	AC
C551	VCSATA1CE225K	J	2.2	16V	Tantalum(N.P)	AB
C552	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C606	VCKYPA2HB561K	J	560p	500V	Ceramic	AA
C607	VCKYPA1HB472K	J	4700p	50V	Ceramic	AA
C608	VCFPVC2DB104J	J	0.1	200V	M-Poly.	AD
C615	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
Ⓢ C617	RC-FZ1017CEZZ	J	12000p	1.6V	Ceramic	AE
C623	VCEA4A2EN106M	J	10	250V	EL.	AD
C631	VCEA0A1HW335M	J	3.3	50V	EL.	AB
C632	VCQYTA1HM103K	J	0.01	50V	Mylar	AB
C633	VCEA0A1CW477M	J	470	16V	EL.	AC
C652	VCEA0A1HW106M	J	10	50V	EL.	AB
C653	VCEA0A1HW106M	J	10	50V	EL.	AB
C680	VCFPVC2DB474J	J	0.47	200V	M-Poly.	AE
C682	VCKYPA2HB331K	J	330p	500V	Ceramic	AA
Ⓢ C701	RC-FZ038SCEZZ	J	0.47	AC250V	Ceramic	AE
C702	RC-KZ0029CEZZ	J	0.01	AC250V	Ceramic	AC
C703	RC-KZ0029CEZZ	J	0.01	AC250V	Ceramic	AC
Ⓢ C705	RC-EZ1022CEZZ	J	470	200V	EL.	AK
Ⓢ C706	RC-KZ0092GEZZ	J	3300p	AC250V	Ceramic	AC
Ⓢ C707	VCFPVC3CA222H	J	2200p	1600V	M-Poly.	AE
C708	VCCSPA1HL471J	J	470p	50V	Ceramic	AA
C709	VCEA0A1VW107M	J	100	35V	EL.	AC
C710	VCQYTA1HM102J	J	1000p	50V	Mylar	AA
Ⓢ C711	RC-KZ0331CEZZ	J	150p	2kV	Ceramic	AE
C717	VCKYPA2HB472K	J	4700p	500V	Ceramic	AB
C718	VCKYPA2HB472K	J	4700p	500V	Ceramic	AB
C722	VCQYTA1HM104K	J	0.1	50V	Mylar	AC

PWB-A: DUNTKA216WEV3

MAIN UNIT (Continued)

Ref. No.	Part No.	★			Description	Code
Ⓢ C723	RC-EZ0724CEZZ	J	100	160V	EL.	AG
Ⓢ C725	RC-EZ0724CEZZ	J	100	160V	EL.	AG
C726	RC-KZ0338CEZZ	J	560p	2kV	Ceramic	AD
C729	VCEA0A1CW106M	J	10	16V	EL.	AB
Ⓢ C730	RC-EZ0385CEZZ	J	1000	160V	EL.	AE
Ⓢ C731	RC-EZ0385CEZZ	J	1000	160V	EL.	AE
C732	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C741	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C742	VCKYPA2HB102K	J	1000p	500V	Ceramic	AA
C753	VCEA0A1CW476M	J	47	16V	EL.	AB
C755	VCEA0A1CW476M	J	47	16V	EL.	AB
C756	VCEA0A1CW476M	J	47	16V	EL.	AB
C772	VCEA0A1VW107M	J	100	35V	EL.	AC
C801	VCQYTA1HM223K	J	0.022	50V	Mylar	AB
C802	VCEA0A1HW474M	J	0.47	50V	EL.	AB
C803	VCCCCY1HH110J	J	11p	50V	Ceramic	AA
C804	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C805	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C806	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C807	VCCCCY1HH221J	J	220p	50V	Ceramic	AA
C808	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C908	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C909	VCEA0A1HW225M	J	2.2	50V	EL.	AB
C951	VCEA0A1HW106M	J	10	50V	EL.	AB
C952	VCEA0A1HW106M	J	10	50V	EL.	AB
C954	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C955	VCEA0A1CW106M	J	10	16V	EL.	AB
C2001	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2002	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2040	VCEA0A1AW107M	J	100	10V	EL.	AB
C2041	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C2060	VCKYCY1CB104K	J	0.1	16V	Ceramic	AB
C2061	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C2062	VCEA0A1AW107M	J	100	10V	EL.	AB
C2201	VCKYCY1HB102K	J	1000p	50V	Ceramic	AA
C2202	VCCCCY1HH390J	J	39p	50V	Ceramic	AA
C2601	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C2602	VCCCCY1HH101J	J	100p	50V	Ceramic	AA
C3001	VCE9GA1HW475M	J	4.7	50V	EL.(N.P)	AB
C3002	VCKYCY1HB562K	J	5600p	50V	Ceramic	AA
C3003	VCQYTA1HM123K	J	0.012	50V	Mylar	AA
C3004	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C3005	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3006	VCEA0A1HW106M	J	10	50V	EL.	AB
C3007	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3008	VCKYCY1HF103Z	J	0.01	50V	Ceramic	AA
C3009	VCEA0A1CW227M	J	220	16V	EL.	AC
C3010	VCE9GA1HW475M	J	4.7	50V	EL.(N.P)	AB
C3011	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3012	VCE9GA1HW475M	J	4.7	50V	EL.(N.P)	AB
C3013	VCKYCY1HB272K	J	2700p	50V	Ceramic	AA
C3014	VCQYTA1HM473K	J	0.047	50V	Mylar	AB
C3015	VCSATA1CE335K	J	3.3	16V	Tantalum(N.P)	AC
C3016	VCE9GA1HW475M	J	4.7	50V	EL.(N.P)	AB
C3017	VCSATA1CE106K	J	10	16V	Tantalum(N.P)	AD
C3018	VCEA0A1HW105M	J	1.0	50V	EL.	AB
C3019	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3020	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3021	VCEA0A1HW475M	J	4.7	50V	EL.	AB
C3022	VCEA0A1HW475M	J	4.7	50V	EL.	AB

RESISTORS

[M-Ox.···Metal Oxide, M-Film···Metal Film]

RJ9	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ11	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ15	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ17	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ19	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ26	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ30	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ31	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ32	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ35	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ36	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ37	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ38	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ42	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ46	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ49	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ52	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ55	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ57	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ61	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ67	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ71	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
RJ74	VRN-MD2AL000J	J	0	1/10W	M-Film.	AA
Ⓢ R52	VRS-VU3DE123J	J	12k	2W	M-Ox.	AB
Ⓢ R53	VRS-VU3AE101J	J	100	1W	M-Ox.	AB
R54	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R55	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R56	VRN-MD2AL823J	J	82k	1/10W	M-Film.	AA
R57	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R201	VRN-MD2AL151J	J	150	1/10W	M-Film.	AA
R202	VRN-MD2AL122J	J	1.2k	1/10W	M-Film.	AA
R203	VRN-MD2AL682J	J	6.8k	1/10W	M-Film.	AA
R204	VRN-MD2AL270J	J	27	1/10W	M-Film.	AA
R205	VRN-MD2AL331J	J	330	1/10W	M-Film.	AA
R206	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R207	VRD-RA2BE4R7J	J	4.7	1/8W	Carbon	AA
R208	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R301	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R302	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R303	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R304	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R305	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R306	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R351	VRN-MD2AL683J	J	68k	1/10W	M-Film.	AA
R352	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R353	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R354	VRD-RA2BE223J	J	22k	1/8W	Carbon	AA
R355	VRD-RA2BE683J	J	68k	1/8W	Carbon	AA
R356	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R357	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
R358	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R401	VRN-MD2AL682J	J	6.8k	1/10W	M-Film.	AA
R402	VRN-MD2AL331J	J	330	1/10W	M-Film.	AA
R403	VRN-MD2AL391J	J	390	1/10W	M-Film.	AA
R404	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R405	VRN-MD2AL470J	J	47	1/10W	M-Film.	AA
R406	VRN-MD2AL680J	J	68	1/10W	M-Film.	AA
R407	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R408	VRN-MD2AL471J	J	470	1/10W	M-Film.	AA
R409	VRN-MD2AL562J	J	5.6k	1/10W	M-Film.	AA
R410	VRD-RA2BE124J	J	120k	1/8W	Carbon	AA
R411	VRD-RA2BE153J	J	15k	1/8W	Carbon	AA
R412	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R413	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R414	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R415	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R421	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R422	VRN-MD2AL472J	J	4.7k	1/10W	M-Film.	AA
R423	VRN-MD2AL152J	J	1.5k	1/10W	M-Film.	AA
R424	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
Ⓢ R451	VRS-SV2HC103J	J	10k	1/2W	M-Ox.	AA
R452	VRD-RA2EE223J	J	22k	1/4W	Carbon	AA
R453	VRD-RM2HD683J	J	68k	1/2W	Carbon	AA
R454	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R456	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R458	VRN-MD2AL152J	J	1.5k	1/10W	M-Film.	AA
Ⓢ R501	VRN-VV3AB3R9J	J	3.9	1W	M-Film.	AA
R510	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R511	VRD-RA2BE104G	J	100k	1/8W	Carbon	AA
R512	VRD-RA2BE124G	J	120k	1/8W	Carbon	AA
R513	VRD-RA2BE473J	J	47k	1/8W	Carbon	AA
R514	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R519	VRD-RA2BE153G	J	15k	1/8W	Carbon	AA
R520	VRN-MD2AL184J	J	180k	1/10W	M-Film.	AA
R523	VRN-VV3AB1R2J	J	1.2	1W	M-Film.	AA

PWB-A: DUNTKA216WEV3

MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description			Code
Ⓢ R524	VRS-VU3AE391J	J	390	1W	M-Ox.	AB
R526	VRN-MD2AL122J	J	1.2k	1/10W	M-Film.	AA
R551	VRN-MD2AL472J	J	4.7k	1/10W	M-Film.	AA
R552	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R553	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R554	VRN-MD2AL184J	J	180k	1/10W	M-Film.	AA
Ⓢ R604	VRS-VU3LE392J	J	3.9k	3.0W	M-Ox.	AB
R605	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R606	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
Ⓢ R607	VRS-VU3LE392J	J	3.9k	3.0W	M-Ox.	AB
Ⓢ R609	VRS-VU3AE562J	J	5.6k	1W	M-Ox.	AB
R610	VRD-RM2HD220J	J	22	1/2W	Carbon	AA
Ⓢ R611	VRS-KA3NG3R3K	J	3.3	7.0W	M-Ox.	AD
R612	VRS-VU3DE103J	J	10k	2W	M-Ox.	AB
Ⓢ R623	VRN-VV3AB3R3J	J	3.3	1W	M-Film.	AA
Ⓢ R624	VRS-VU3DE332J	J	3.3k	2W	M-Ox.	AB
R625	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
Ⓢ R626	VRN-VV3AB1R5J	J	1.5	1W	M-Film.	AA
R627	VRD-RM2HD224J	J	220k	1/2W	Carbon	AA
R631	VRN-MD2AL391J	J	390	1/10W	M-Film.	AA
R632	VRN-MD2AL152J	J	1.5k	1/10W	M-Film.	AA
R633	VRD-RA2BE472J	J	4.7k	1/8W	Carbon	AA
R634	VRD-RA2BE4R7J	J	4.7	1/8W	Carbon	AA
Ⓢ R651	VRS-SV2HC270J	J	27	1/2W	M-Ox.	AA
Ⓢ R652	VRD-RA2BE123J	J	12k	1/8W	Carbon	AA
Ⓢ R653	VRD-RA2BE822J	J	8.2k	1/8W	Carbon	AA
Ⓢ R654	VRN-MD2AL104J	J	100k	1/10W	M-Film.	AA
Ⓢ R655	VRN-MD2AL104J	J	100k	1/10W	M-Film.	AA
R690	VRS-SV2HC102J	J	1.0k	1/2W	M-Ox.	AA
Ⓢ R701	RR-HZ0048CEZZ	J	Resistor			AB
Ⓢ R702	VRW-KQ3NC1R2K	J	1.2	7.0W	Cement	AE
R704	VRD-RM2HD154J	J	150k	1/2W	Carbon	AA
Ⓢ R705	VRN-VV3DBR27J	J	0.27	2W	M-Film.	AB
Ⓢ R706	VRN-VV3DBR27J	J	0.27	2W	M-Film.	AB
R707	VRS-SV2HC681J	J	680	1/2W	M-Ox.	AA
Ⓢ R709	VRN-GA2EB1R0J	J	1.0	1/4W	M-Film.	AA
R710	VRD-RM2HD330J	J	33	1/2W	Carbon	AA
R711	VRD-RA2BE242J	J	2.4k	1/8W	Carbon	AA
Ⓢ R715	VRS-VU3DE153J	J	15k	2W	M-Ox.	AB
Ⓢ R723	VRN-VV3DBR39J	J	0.39	2W	M-Film.	AA
R724	VRS-SV2HC332J	J	3.3k	1/2W	M-Ox.	AA
R725	VRS-SV2HC821J	J	820	1/2W	M-Ox.	AA
R727	VRD-RA2BE271J	J	270	1/8W	Carbon	AA
Ⓢ R728	VRN-VV3LB4R7J	J	4.7	3.0W	M-Film.	AC
R734	VRD-RM2HD124J	J	120k	1/2W	Carbon	AA
Ⓢ R737	VRN-VV3DBR56J	J	0.56	2W	M-Film.	AA
R751	VRN-MD2AL473J	J	47k	1/10W	M-Film.	AA
R801	VRN-MD2AL332J	J	3.3k	1/10W	M-Film.	AA
R802	VRN-MD2AL332J	J	3.3k	1/10W	M-Film.	AA
R803	VRN-MD2AL222J	J	2.2k	1/10W	M-Film.	AA
R804	VRN-MD2AL222J	J	2.2k	1/10W	M-Film.	AA
R805	VRN-MD2AL222J	J	2.2k	1/10W	M-Film.	AA
R806	VRN-MD2AL333J	J	33k	1/10W	M-Film.	AA
R807	VRN-MD2AL152J	J	1.5k	1/10W	M-Film.	AA
R808	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R924	VRN-MD2AL750J	J	75	1/10W	M-Film.	AA
R925	VRN-MD2AL104J	J	100k	1/10W	M-Film.	AA
R926	VRD-RA2BE104J	J	100k	1/8W	Carbon	AA
R951	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R952	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R961	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R962	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2001	VRD-RA2BE562J	J	5.6k	1/8W	Carbon	AA
R2002	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2004	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2006	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2008	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2009	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2010	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R2012	VRN-MD2AL471J	J	470	1/10W	M-Film.	AA
R2016	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R2020	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R2023	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R2024	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2025	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2026	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2027	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2028	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2029	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2032	VRD-RA2BE103J	J	10k	1/8W	Carbon	AA
R2035	VRN-MD2AL223J	J	22k	1/10W	M-Film.	AA
R2040	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2041	VRD-RA2BE333J	J	33k	1/8W	Carbon	AA
R2042	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2043	VRN-MD2AL333J	J	33k	1/10W	M-Film.	AA
R2044	VRD-RA2BE682J	J	6.8k	1/8W	Carbon	AA
R2045	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2046	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2047	VRN-MD2AL221J	J	220	1/10W	M-Film.	AA
R2048	VRN-MD2AL562J	J	5.6k	1/10W	M-Film.	AA
R2060	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
R2061	VRN-MD2AL562J	J	5.6k	1/10W	M-Film.	AA
R2062	VRD-RA2BE183J	J	18k	1/8W	Carbon	AA
R2063	VRD-RA2BE222J	J	2.2k	1/8W	Carbon	AA
R2064	VRD-RA2BE332J	J	3.3k	1/8W	Carbon	AA
R2067	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2068	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2070	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2071	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R2101	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R2102	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R2201	VRN-MD2AL222J	J	2.2k	1/10W	M-Film.	AA
R2202	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2203	VRN-MD2AL184J	J	180k	1/10W	M-Film.	AA
R2211	VRN-MD2AL222J	J	2.2k	1/10W	M-Film.	AA
R2212	VRN-MD2AL682J	J	6.8k	1/10W	M-Film.	AA
R2213	VRN-MD2AL333J	J	33k	1/10W	M-Film.	AA
R2401	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R2402	VRN-MD2AL101J	J	100	1/10W	M-Film.	AA
R2403	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2404	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R2501	VRN-MD2AL103J	J	10k	1/10W	M-Film.	AA
R2503	VRN-MD2AL273J	J	27k	1/10W	M-Film.	AA
R2504	VRD-RA2BE123J	J	12k	1/8W	Carbon	AA
R2505	VRN-MD2AL563J	J	56k	1/10W	M-Film.	AA
R2506	VRD-RA2BE563J	J	56k	1/8W	Carbon	AA
R2507	VRN-MD2AL823J	J	82k	1/10W	M-Film.	AA
R2508	VRN-MD2AL153J	J	15k	1/10W	M-Film.	AA
R2509	VRN-MD2AL272J	J	2.7k	1/10W	M-Film.	AA
R2601	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R3001	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R3002	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R3003	VRN-MD2AL105J	J	1.0M	1/10W	M-Film.	AA
R3004	VRN-MD2AL104J	J	100k	1/10W	M-Film.	AA
R3005	VRN-MD2AL623J	J	62k	1/10W	M-Film.	AA
R3007	VRN-MD2AL332J	J	3.3k	1/10W	M-Film.	AA
R3008	VRN-MD2AL302J	J	3.0k	1/10W	M-Film.	AA
R3010	VRN-MD2AL392J	J	3.9k	1/10W	M-Film.	AA
R3011	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R3012	VRN-MD2AL102J	J	1.0k	1/10W	M-Film.	AA
R3013	VRD-RA2BE104J	J	100k	1/8W	Carbon	AA
R3014	VRN-MD2AL104J	J	100k	1/10W	M-Film.	AA
R3015	VRD-RA2BE101J	J	100	1/8W	Carbon	AB
R3016	VRN-MD2AL750J	J	75	1/10W	M-Film.	AA
R3017	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R3018	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA

SWITCHES

S2501	QSW-K0202PEZZ	R	Power	AC
S2502	QSW-K0202PEZZ	R	Vol-Down	AC
S2503	QSW-K0202PEZZ	R	Vol-Up	AC
S2504	QSW-K0202PEZZ	R	CH-Down	AC
S2505	QSW-K0202PEZZ	R	CH-Up	AC

MISCELLANEOUS PARTS

RY701	RRLYJ0081CEZZ	J	Relay	AL
F701	QFS-B4023CEZZ	J	Fuse 4A (125V)	AC
FB601	RBLN-0047CEZZ	J	Ferrite Bead	AB

PWB-A: DUNTKA216WEV3
MAIN UNIT (Continued)

Ref. No.	Part No.	★	Description	Code
FB702	RBLN-0036CEZZ	J	Ferrite Bead	AB
FB704	RBLN-0037CEZZ	J	Ferrite Bead	AB
FB706	RBLN-0037CEZZ	J	Ferrite Bead	AB
FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
P351	QPLGN0461CEZZ	J	Plug, 4-Pin (S)	AB
P601	QPLGN0160FJZZ	J	Plug, 5-Pin (K)	AD
P621	QPLGN0461CEZZ	J	Plug, 4-Pin (YBN)	AB
P651	QPLGN0361CEZZ	J	Plug, 3-Pin	AB
P701	QPLGN0207CEZZ	J	Plug, 2-Pin (M)	AA
P901	QPLGN0561CEZZ	J	Plug, 5-Pin (HA)	AB
P903	QPLGN0561CEZZ	J	Plug, 5-Pin (GBN)	AB
P2401	QPLGN0561CEZZ	J	Plug, 5-Pin	AB
RMC2601	RRMCU0222CEZZ	J	R/C Receiver	AL
RDA501	PRDAR0234PEFW	R	Heat Sink, for IC501	AH
RDA604	PRDAR0233PEFW	R	Heat Sink, for Q602	AK
RDA701	PRDAR1008MEFW	J	Heat Sink, for IC701	AH
RDA751	PRDAR5072CEFW	J	Heat Sink, for IC751	AC
TAN921	QTANJ0323CEZZ	J	Terminal	AL
	LX-BZ3049GEFD	J	Screw	AA
	LX-TZ3004CEFD	J	Screw	AA

PWB-B: DUNTK9910WEV1
CRT UNIT

TRANSISTORS

Q851	VS2SC3198-Y-1	J	2SC3198 (Y)	AA
Q852	VS2SC3789//2E	J	2SC3789	AF
Q853	VS2SC3198-Y-1	J	2SC3198 (Y)	AA
Q854	VS2SC3789//2E	J	2SC3789	AF
Q855	VS2SC3198-Y-1	J	2SC3198 (Y)	AA
Q856	VS2SC3789//2E	J	2SC3789	AF
Q881	VS2SA1266-Y-1	J	2SA1266 (Y)	AA

DIODES

You can substitute "RH-DX0045CEZZ" for "VHD1SS119//-1".

D881	VHD1SS119//-1	J	Diode	AB
D882	VHD1SS119//-1	J	Diode	AB
D884	VHD1SS119//-1	J	Diode	AB

COIL

L851	VP-MK820K0000	J	Peaking 82µH	AB

CAPACITORS

[EL.…Electrolytic]

C851	VCCSPA1HL391J	J	390p	50V	Ceramic	AA
C852	VCCSPA1HL331J	J	330p	50V	Ceramic	AA
C853	VCCSPA1HL391J	J	390p	50V	Ceramic	AA
C854	RC-KZ0024CEZZ	J	0.001	2kV	Ceramic	AC
C883	VCEA0A1HW106M	J	10	50V	EL.	AB

RESISTORS

[M-Ox.…Metal Oxide]

R851	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R852	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R853	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R855	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R856	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
Ⓢ R857	VRS-VU3LE123J	J	12k	3.0W	M-Ox.	AB
R858	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R859	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R860	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R861	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R863	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R864	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
Ⓢ R865	VRS-VU3LE123J	J	12k	3.0W	M-Ox.	AB
R866	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R867	VRD-RA2BE470J	J	47	1/8W	Carbon	AA
R868	VRD-RA2BE181J	J	180	1/8W	Carbon	AA
R869	VRD-RA2BE121J	J	120	1/8W	Carbon	AA
R871	VRD-RA2BE471J	J	470	1/8W	Carbon	AA
R872	VRD-RA2BE221J	J	220	1/8W	Carbon	AA
Ⓢ R873	VRS-VU3LE123J	J	12k	3.0W	M-Ox.	AB
R874	VRD-RM2HD222J	J	2.2k	1/2W	Carbon	AA
R881	VRD-RA2BE102J	J	1.0k	1/8W	Carbon	AA
R882	VRD-RA2BE331J	J	330	1/8W	Carbon	AA
R883	VRD-RA2BE561J	J	560	1/8W	Carbon	AA
R884	VRD-RA2BE152J	J	1.5k	1/8W	Carbon	AA
R895	VRD-RA2BE470J	J	47	1/8W	Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0561CEZZ	J	Plug, 5Pin (GBN)	AB
P852	QPLGN0461CEZZ	J	Plug, 4-Pin (YBN)	AB
SC851	QSOCV0937CEZZ	J	Socket	AL

Ref. No.	Part No.	★	Description	Code

PWB-H: DUNTK9310WEV1
FRONT AV UNIT

MISCELLANEOUS PARTS

J1001	QJAKE0053GEZZ	J	Jack, Video IN	AD
J1002	QJAKE0055GEZZ	J	Jack, Audio IN (L)	AD
J1003	QJAKE0059GEZZ	J	Jack, Audio IN (R)	AC
P1001	QPLGN0561CEZZ	J	Plug, 5-Pin (HA)	AB

MISCELLANEOUS PARTS

Ⓢ ACC701	QACCD3090CESA	J	AC Cord, 120V/60Hz	AK
	QCNW-2338PEZZ	R	Connecting Cord	AF
	QCNW-2339PEZZ	R	Connecting Cord	AF
	QCNW-2343PEZZ	R	Connecting Cord	AH
	QCNW-2565PEZZ	R	Connecting Cord	AD
	VSP0080PBP8YA	R	Speaker	AK

SUPPLIED ACCESSORIES

RRMCG1395CESA	M	Infrared R-C	AW
TiNS-7425PEZZ	R	Instruction Book	AK

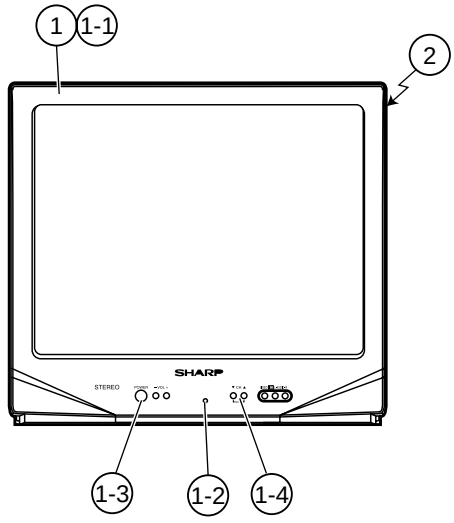
PACKING PARTS

SPAKC6746PEZZ	R	Packing Case	BB
SPAKP0097PEZZ	R	Wrapping Paper	AK
SPAKX2710PEZZ	R	Packing Add.	AZ
SSAKA0005PEZZ	R	Polyethylene Bag	AA

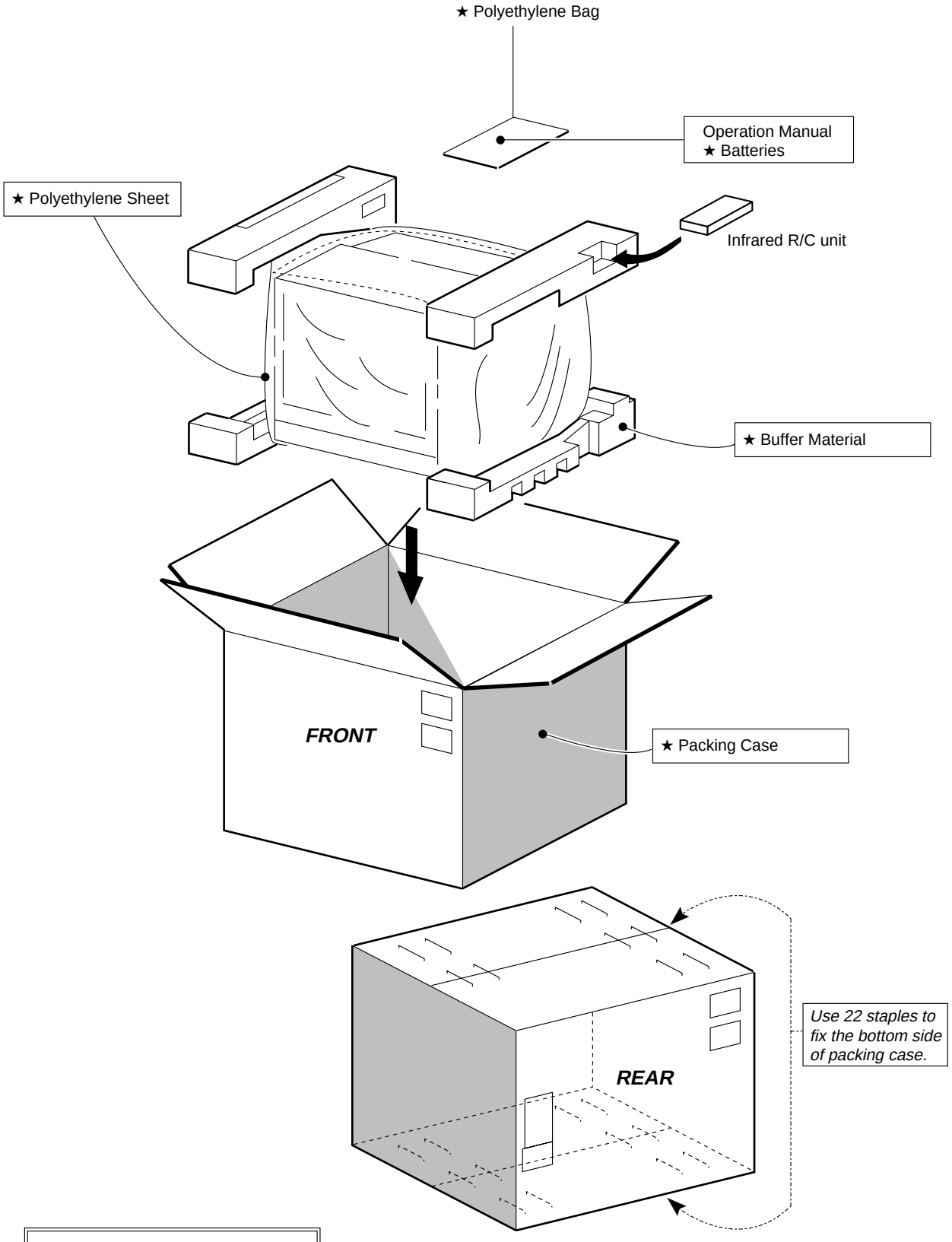
Ref. No.	Part No.	★	Description	Code

CABINET PARTS

1	CCABA2666WEV0	R	Cabinet	BH
1-1	*Not Available*	–	Front Cabinet	—
1-2	GCOVA0104PEKA	R	Cover	AC
1-3	JBTN-0309PEKA	R	Button, Power, Vol-up/down	AE
1-4	JBTN-0310PEKA	R	Button, CH-up/down	AE
2	GCABB2384PEKA	R	Rear Cabinet	BD



PACKING OF THE SET



★ **MARK** : Not Replacement Items.

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